CONTAINERS FOR STORING ARTICLES

[001] The present application is a continuation-in-part of Design Patent Application No. 29/189,372 filed on September 3, 2003 in the United States Patent and Trademark Office, which is incorporated by reference herein.

Field of the Invention

[002] The present invention relates to containers, such as pails, for storing articles.

Background of the Invention

[003] A container for storing articles, such as a pail, may comprise a body and a cover. Pails are commonly used to store a large number of small objects, such as nuts, bolts, screws, or other such fasteners. Pails may be used in hardware stores, for example, to store such items separately from similar items of different shape and size. A large number of pails may therefore be stored on shelves in the store. When a user, who may be an employee of the store, needs to take a number of items from a pail, the user typically takes an appropriate pail off the shelf, lowers it to the floor, removes the cover completely, reaches into the body of the pail, and takes the required number of items out. Then the user closes the cover, lifts the pail, and places it back on the shelf.

[004] The pails, which may contain a large number of small items made of metals such as iron, may be very heavy. Commonly, a pail having a length, width and height of about 7.5x7.5x7.5 inches and filled with fasteners, such as screws, may weigh about 30 pounds, for example. Continuously lifting and moving such pails may be tiring, especially during a typical 8-hour work shift. Moreover, a typical order may include small quantities of dozens of items, each stored in a separate pail, requiring a plurality of pails to be accessed. In addition, while the cover is removed from the pail, the user may accidentally spill the contents of the pail, requiring time to gather the spilled items, interrupting the normal flow of order filling. It is very time-

consuming to perform all of the above described steps to retrieve the items, reducing the number of orders which can be filled in a given period of time and therefore reducing sales. It may also require hiring people capable of heavy lifting, thus restricting a potential pool of employees to those with extra strength. It may also have a health toll on the employees performing this heavy lifting, causing back, muscle, and groin injuries which may cause the employees to miss work.

[005] An alternative method of storing pails is to stack them one upon another, thereby requiring that a pail be made of a sturdy material to withstand pressure from the heavy pails filled with items stacked upon it. Removal of items from a pail in the middle of a stack requires lifting all the pails above it and removing them to a nearby location to gain access to the middle pail. Thus the lifting involved and its associated detriments described above may be increased in this storage arrangement.

[006] In addition, pails filled with fasteners may be used outdoors. For example, construction workers may take the pails to a worksite and leave them there overnight in the open air. Atmospheric moisture, such as rain or dew, may leak into the body of the pail, thus damaging its contents.

[007] In addition, since the cover of a typical pail may be removed from the body and then securely attached again, a user would not have any indication that someone had substituted all or part of the original contents of the pail with counterfeit contents. Thus, the user may be harmed by unknowingly using counterfeit products, which are typically inferior to the original products in material and workmanship.

Summary of the Invention

[008] One embodiment of the invention is directed to easing access to the items stored in a container, such as a pail, by including a lid in the cover. This lid can be opened and closed without removing the cover from the pail. Hence, a user may access the items stored in the pail

by opening the lid and reaching into the pail, without removing the cover. In addition, the pail can remain in the place where it is stored, such as on a shelf, and the user need not lift or move the pail to an open space in order to remove the cover. Therefore, with a pail in accordance with an embodiment of the invention, the need to lift a heavy pail off a shelf and the need to remove the cover off the pail whenever articles are needed, may be reduced or eliminated. The risk of spilling contents of the pail (when the cover is opened) may also be reduced. Access to the items stored in the pail is thereby facilitated.

[009] Another embodiment of the invention is directed to preventing rain and other atmospheric moisture from getting inside the body through an opened or not tightly closed lid. To accomplish this, a cavity is defined in the cover into which a second cover, such as a plate, is inserted. The plate completely covers the cavity including the lid, and thus reduces the amount of moisture that may contact the lid and leak through the opening into the body.

[0010] Another embodiment of the invention is directed to providing an indicator of potential counterfeiting of the contents of the pail by providing a tear strip along the circumference of the cover. Since the cover closes the body so tightly, a counterfeiter has to tear off the tear strip in order to substitute the original contents for the counterfeit contents. However, in accordance with this embodiment of the invention, once the tear strip is torn off, the cover cannot be tightly closed on the body. It may also be visually apparent that the tear strip has been removed. The user may thereby realize that the contents of the pail may have been counterfeited.

[0011] In accordance with one embodiment of the present invention, a pail to store articles is disclosed comprising a body and a cover. The cover is adapted to close the body. The cover defines at least one opening and comprises at least one lid to open and close the opening. The opening may be adapted to receive a human hand when the lid is in the opened position, to

retrieve articles. The lid has a first end and a second end. The first end of the lid may be coupled to the cover, such as via a pivotable connection. The opening and the lid may be located in a cavity in the cover and the pail may comprise a second cover adapted to fit within the cavity. The second cover may completely cover the cavity, thereby completely covering the opening and the lid. An outer rim and a tear strip at the bottom of the outer rim of the cover may be provided. The lid may be a rectangle, a triangle, or a semicircle, for example. The lid may comprise a snapper on the second end of the lid opposite the pivot to close the lid. The lid and the opening may be fully within the cover. The pivotal connection may comprise a hinge.

[0012] In accordance with another embodiment of the invention, a cover for a container is disclosed. The cover comprises at least one opening and at least one lid to open and close the opening. The opening may be adapted to receive a human hand when the lid is in the opened position, to retrieve articles. The lid may have an end. The end of the lid may be coupled to the cover, such as via a pivotable connection. The opening and the lid may be located in a cavity in the cover and the pail may comprise a second cover adapted to fit within the cavity. The second cover may completely cover the cavity, thereby completely covering the opening and the lid. A tear strip may be provided, as described above.

[0013] In accordance with another embodiment of the invention, a pail storing a plurality of articles is disclosed comprising a body and a cover, as described above. The articles may comprise a fastener such as nuts, screws, nails, and bolts, for example.

Brief Description of the Drawings

[0014] Further objects, features and advantages of the invention will become apparent from the following detailed description taken in conjunction with the accompanying drawings showing an illustrative embodiment of the invention, in which:

[0015] Fig. 1 is a top, front, and left side disassembled perspective view of a pail in accordance with one embodiment of the invention, with a handle in a lowered position, a cover removed from the pail and a lid in a closed position, and a plate removed from the cover;

[0016] Fig. 2 is a top view of a cover;

[0017] Fig. 3 is a cross-sectional bottom view of a portion of a cover along line 3-3;

[0018] Fig. 4 is a front view of a pail with a handle in an upper position, a cover closed, and a panel removed;

[0019] Fig. 5 is a top, front, and left side perspective view of the pail of Fig. 1 with the cover in a closed position, the lid in an open position, and a panel removed;

[0020] Fig. 6 is a cross-sectional view of a lid and a snapper along line 6-6;

[0021] Fig. 7 is a top view of a panel;

[0022] Fig. 8 is a top, front, and right side perspective view of the pail of Fig.1 with a handle in an upper position and a plate inserted in a cavity in the cover.

[0023] Fig. 9 is a cross-sectional view of the cover with the plate inserted in the cavity along lines 9-9 in Fig. 8.

[0024] Fig. 10 is a top, front, and left side perspective view of a pail in accordance with another embodiment of the invention, with a handle in a lowered position, two lids in a closed position, and a panel removed;

[0025] Fig. 11 is a top, front, and left side perspective view of a pail in accordance with another embodiment of the invention, with a handle in a lowered position, a lid in an opened position, and a panel removed.

Detailed Description of the Invention

[0026] Fig. 1 is a top, front, and left side disassembled perspective view of a pail A for storing articles in accordance with one embodiment of the invention. The pail A comprises a

body 1, a cover 2, and a plate 5. The body 1 defines an opening 24 shown in Fig. 5. A lid 23 is provided to selectively open and close the opening 24. The cover 2 is attachable to the body 2 to close the opening 24. The cover 2 defines a cavity 35, and the plate 5 is adapted to fit within the cavity 35 to cover the lid 23 and opening 24.

[0027] The body 1 comprises four walls – a front wall 1a, a left wall 1b, a right wall (not shown), and a back wall (not shown). All four walls are attached at their proximal ends to a bottom wall 54, shown in phantom in Fig. 4. In this example, all the four walls extend substantially perpendicular to the bottom wall. The distal ends of all the four walls form a mouth 11. The mouth 11 extends circumferentially to form an outwardly extending flange 12. Preferably, another flange 13 extends outwardly from the body 1, proximate and below the flange 12. The flange 13 may be located approximately a thickness of the cover 2 or more below the flange 12, for example. The flange 13 may provide a supporting surface for the cover 2 but that is not required. Another flange 14 preferably extends outward from the body 1, below the flange 13. The flanges 13 and 14 reinforce the strength of the pail A, enabling the pail A to withstand the weight of a number of filled pails A stacked upon one another.

[0028] Handle blocks 15 are positioned on the left wall 1b and the right wall of the body 1. Each of the handle blocks 15 has an axial hole 16 for mounting one end of a handle 3. The handle 3 is thus pivotally connected to the body 1. The handle 3 may have a lowered position, as shown in Fig. 1, or may be lifted from the lowered position into an upper position (shown in Figs. 2 and 4) above the mouth 11 or the cover 2 for carrying the pail A, for example.

[0029] As mentioned above, the lid 23 is located in the cover 2. The lid 23 is shown in Figs. 1, 2, and 3 in a closed position, thereby covering the opening 24 in the cover 2. A first end of the lid 23 is pivotally connected to the cover 2 by a hinge 28, for example. A snapper 29 is

provided at a second end of the lid 23 to securely close the lid 23, for example, as described further below. The lid 23 is shown in Fig. 5 in an opened position.

[0030] Fig. 2 is a top view of the pail A with the cover 2 closed on the body 2, the handle 3 in the upper position, the lid 23 in the closed position, and the plate 5 removed from the cover 2. Fig. 3 is a cross-sectional view of a half of the cover 2 along lines 3-3 shown in Fig. 2. The cross-sectional view of the other half of the cover 2 is a mirror image of the cross-sectional view in Fig. 3.

[0031] Referring to Figs. 2 and 3, a top surface 31 of the cover 2 comprises four sections 31a, 31b, 31c, and 31d running circumferentially around the cover 2. A wall 39b, a wall 39dshown in Fig. 9, and other corresponding walls of the top surface 31(not shown) may be inwardly tapered toward a cavity 35. A bottom surface 32 is located in the cover 2 below the level of the top surface 31. A groove 30 is located in the cavity 35 below the level of the bottom surface 32 between the bottom surface 32 and the top surface 31. The opening 24 and the lid 23 are located on the bottom surface 32. The bottom surface 32 and the groove 30 thereby define the cavity 35 in the cover. The cavity 35 has inner dimensions L1 and L2. A bottom edge 53, shown in Fig. 4, of the body 2 is inserted into the groove 30 when the pails A are stacked one upon another to provide stability. The lid 23 is shown in Fig. 2 in a closed position, thereby covering the opening 24 in the cover 2.

[0032] The cover 2 comprises an inner rim 21 consisting of section 21b and three other sections (not shown) extending downward from a bottom 34 of the top surface 31 and running circumferentially around the cover 2. An outer rim 20 consists of four sections 20a, 20b, 20c, and 20d extending downward from the bottom 34 of the top surface 31 and running

circumferentially around the cover 2. The outer rim 20 defines the thickness of the cover 2. A gap 22 is formed by a space between the inner rim 21 and the outer rim 20.

[0033] A flange 26 consists of four sections (not shown) extending from the sections 20a, 20b, 20c, and 20d of the outer rim 20 inwardly into the gap 22. The four sections of the flange 26 run circumferentially around the outer rim 20 underneath the sections 31a, 31b, 31c, and 31d of the top surface 31. An edge 27 extends downward from the top surface 31. The flange 26 is made of a resilient material, such as polypropylene, to enable it to be deformed when pressed over the flange 12 of the body 2 and to return to its normal dimensions when the flange 12 is cleared, providing a snap fit. When the cover 2 has to be closed on the body 1, the cover 2 is placed on the mouth 11 such that the flange 12 fits into the gap 22. Then pressure is applied onto the cover 2, downward toward the bottom wall of the body 1, until the flange 26 snaps over the flange 12 to securely close the cover 2 on the body 1, preventing the contents of the pail A from escaping. Since the flange 26 snaps over the flange 12, it is difficult to remove the cover 2. A tool, such as a screw driver, may be inserted as a wedge between the outer rim 20 and the flange 12, for example.

[0034] To remove the cover 2 for the first time, the tear strip 25 needs to be torn off, to remove the flange 26 or substantial portions of it from the cover 2. Fig. 4 is a front view of the pail A, showing a portion of the tear strip 25. The tear strip 25 runs circumferentially around the outer rim 20. The tear strip 25 is preferably of uneven height – in some parts of the outer rim 20 the tear strip 25 has a height 55, in other parts it has height 57. The height 57 is formed by a groove 50 having a wave-like edge, which is a part of the outer rim 20. The tear strip 25 is defined by a thin region 25a of the outer rim 20, which preferably extends completely around the outer rim 20. The thin region 25a facilitates tearing off the tear strip 25 by a user. The tear strip

25 is formed in an extrusion molding process used to form the cover 2. The groove 50 extends downward below an edge 59 (which is left exposed when the height 55 of the tear strip 25 is torn off) and provides for tighter closure of the cover 2 on the body 1 after the tear strip 25 has been removed. A bottom edge 53 of the body 2 extends downward from the bottom wall 54, shown in phantom lines, of the body 2. In this example, the bottom edge 53 is substantially perpendicular to the bottom wall. When the pails A are stacked one upon another, the bottom edge 53 of an upper pail fits into the groove 30 of the cover 2 of a lower pail.

[0035] In this embodiment, once the tear strip 25 is torn off, the cover 2 cannot be tightly closed on the body 1 because the flange 12 does not engage the remaining portion of the flange 26 as tightly as when the tear strip 25 and the complete flange 26 were in place. Thus, this aspect of the invention can alert a user to possible counterfeiting because the user, who purchased the pail A with articles in it, would notice that the cover 2 is not securely closed on the body 1 and is likely to become suspicious of the origin of the contents of the pail A. Given this ease of detecting potential tampering, counterfeiters are less likely to counterfeit the items stored in the pails constructed in accordance with this embodiment of the invention. Upon noticing the absence of the tear strip 25 and becoming suspicious of potential counterfeiting, the user is likely to examine or test the contents of the pail A to ascertain the quality of the contents, thus establishing whether or not actual counterfeiting occurred. Therefore, this aspect of the invention increases the chance of the user detecting counterfeit items. Hence, with the risk of detection increasing, the incentive to counterfeit is decreased.

[0036] Fig. 5 is a top, right, and left side perspective view of the pail A with the cover 2 closed on the body 1. Fig. 5 shows the lid 23 in an opened position, with a second end of the lid 23 pointing upward at an angle. The opening 24 is shown. A snapper 29 is located at the

second end of the lid 23 to securely close the lid 23, as shown in Fig. 1. Fig. 6 is a cross-sectional view the snapper 29, shown in a vertical position, and the lid 23 along lines 6-6 in Fig. 5. The snapper 29 is made of a resilient material, such as polypropylene. When the lid 23 is in a closed position, a top part 71 of the snapper 29 rests against an edge of the opening 24. The lid 23 is moved from a closed position as shown in Fig. 1 to an opened position as shown in Fig. 5 by applying pressure to the top part 71 toward a bottom part 73, thereby disengaging the top part 71 from the edge of the opening 24 and moving the top part 71 into gap 75. Once the snapper 29 disengages from the edge of the opening 24, the lid 23 may be moved into an opened position by pulling upwards on a tip 76 of the snapper 29 towards the section 20c shown in Fig. 1. Once the pressure is no longer applied, the top part 71 returns to its normal position.

[0037] As discussed above, in this embodiment, the plate 5 is provided to be inserted into the cavity 35 of the cover 2 to reduce the amount of atmospheric moisture, such as rain and humidity, that may come into contact with the lid 23 and the opening 24 and penetrate the pail A, where it could damage the contents of the pail A. Fig. 7 is a top view of the plate 5. The plate 5 is preferably made of the same material as the pail A and is adapted to securely fit into the cavity 35 by a pressfit. Outer dimensions L3 and L4 of the plate 5 are therefore preferably slightly greater than the inner dimensions L1 and L2 of the cavity 35 shown in Fig. 2. The plate 5 has a side surface formed by four sides 5a, 5b, 5c, and 5d. The plate 5 is inserted into the cavity 35 and pressure is applied downward on the plate 5 until it fits snugly into place in the cavity 35. Alternatively, the plate 5 can be adapted to snug-fit into the cavity 35 by providing a flange (not shown) at the edge of the plate 5. When a user needs to remove the plate 5, the user can grab a bar 7 protruding from a corner of the plate 5, as shown in Figs. 1 and 7, and pull the plate 5

upward until it is removed from the cavity 35. The bar 7 may include a group of bars to assist in grabbing the bar 7.

[0038] The plate 5 may also have markings forming two rulers 6a and 6b, for example. The ruler 6a may be in centimeters and the ruler 6b may be in inches, for example. When the plate 5 is removed, the rulers 6a and 6b can be used to measure different objects, thereby obviating a need to have a separate ruler.

[0039] Fig. 8 is a top, front, and right side perspective view of the pail A with a handle in an upper position, and a plate inserted in the cavity 35 in the cover 2. The lid 23, which is in the closed position, and the opening 24 are covered by the plate 35 and therefore not shown in Fig. 8.

[0040] Fig. 9 is a cross-sectional view of the cover 2 along lines 9-9 in Fig. 8 with the plate 5 inserted in the cavity 35. Some details of the cover 2 are omitted in Fig. 9. The side 5b of the plate 5 rests against the wall 39b and the side 5d of the plate 5 rests against the wall 39d. The plate 5 may rest on the bottom surface 32.

[0041] The preferred material for the pail A is a plastic, such as polypropylene. The pail A may be formed in an extrusion molding process. Other materials that may be used may include resilient materials, such as metals and metal alloys.

[0042] It will be appreciated by those skilled in the art that the shape, size and number of openings in the cover 2 and their corresponding lids can be modified in a variety of ways. For example, Fig. 10 is a top, front, and left side perspective view of a pail B in accordance with another embodiment of the invention, with a cover defining two openings 24a and 24b and two lids 23a and 23b covering the two openings 24a and 24b, respectively. In this alternative embodiment, the lids 23a and 23b have the same rectangular shape as the lid 23 of Fig. 1. The

first ends of the lids 23a and 23b are pivotally connected to the cover 2 by hinges 28a and 28b, respectively.

[0043] In addition, a lid may have other shapes. For example, Fig. 11 is a top, front, and left side perspective view of a pail C in accordance with another embodiment of the invention, with a lid 33 in the form of a triangle. A base of the lid 33 is pivotally connected to the cover 2 by a hinge 28. The lid and opening may be semi-circular, for example, as well.

[0044] It will be also appreciated by those skilled in the art that in alternative embodiments of the invention a lid may be coupled to the cover by a variety of methods. For example, two or more lids may be used to close the same opening. Each lid may be separately opened and closed via a separate snapper. Other examples of lids may include a sliding lid that may slide over the opening 24. In addition, a lid may be shaped as a circle with one half of the circle defining a hole in the lid. The circular lid may cover a semicircular opening in a cover and may be rotatably coupled to the cover by a pin at the center of the circular lid. In addition, a lid may be divided into a plurality of flexible lids that may be displaced by a user's hand and return to their original position closing the opening when the hand is removed.

[0045] It will also be appreciated by those skilled in the art that a body of a container may be build out of a number of materials, e.g., paper, cardboard, plastic, metal, fabric, etc. to suit particular storage needs. The body of a container may comprise a number of rigid sides, i.e., walls, or a fairly flaccid body, for example, a sack. The body may have more than one opening in the side walls, such as a mouth, both covered and uncovered, through which a container may be connected with other containers or mechanisms for storage, transportation, or manipulation of items. The body may comprise internal partitions enabling storage of two or more types of items in separate compartments of the same container.

[0046] The foregoing merely illustrates preferred embodiments of the invention. It will thus be appreciated that those skilled in the art will be able to devise numerous other arrangements that are within the spirit and scope of the invention, which is defined by the claim below.